

DP-302561

IN THE CLAIMS:

1. (Currently Amended) A catalyst for treating an exhaust gas stream comprising:
a NOx occluding catalyst structure comprising an alkaline earth exchanged zeolite
and having an outer layer,

wherein the outer layer comprises at least about 50 weight percent of an
alkaline earth component, and not more than about 42 weight percent of a rare earth component,
based upon the total weight of the outer layer.

2 - 3. (Cancelled)

4. (Previously Presented) The catalyst of Claim 1 wherein the outer layer comprises
an alkaline earth component in an amount of at least about 70 weight percent and a rare earth
component in an amount of not more than about 25 weight percent.

5. (Original) The catalyst of Claim 1 wherein the alkaline earth component is
selected from the group consisting of calcium, strontium, barium, and mixtures thereof.

6. (Original) The catalyst of Claim 5 wherein the alkaline earth component is
calcium.

7. (Original) The catalyst of Claim 1 wherein the rare earth component is selected
from the group consisting of lanthanum, cerium, neodymium, and mixtures thereof.

8. (Original) The catalyst of Claim 7 wherein the rare earth component is
neodymium.

9. (Original) The catalyst of Claim 1 wherein the outer layer comprises a surface
area stabilizer selected from the group consisting of oxides of silicon, titanium, zirconium, and
mixtures thereof.

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10. (Original) The catalyst of Claim 9 wherein the surface area stabilizer comprises zirconium.
11. (Original) The catalyst of Claim 9 wherein the outer layer comprises a surface area stabilizer in an amount not more than about 7 wt%.
12. (Original) The catalyst of Claim 11 wherein the outer layer comprises a surface area stabilizer in an amount not more than about 3 wt%.
13. (Original) The catalyst of Claim 1 wherein the outer layer comprises a binder selected from the group consisting of acidic aluminum oxide sol, alkaline aluminum oxide sol, ammonium aluminum oxide sol, and mixtures thereof.
14. (Original) The catalyst of Claim 13 wherein the outer layer comprises an ammonium aluminum oxide sol binder.
15. (Previously Presented) A catalyst for treating an exhaust gas stream comprising a NO_x occluding catalyst structure having an outer layer, comprising:
 - an alkaline earth component;
 - a rare earth component; and
 - a binder wherein the binder is selected from the group consisting of acidic aluminum oxide sol, alkaline aluminum oxide sol, ammonium aluminum oxide sol, and mixtures thereof, and is present in an amount of at least about 2 wt% and less than about 6 wt%.

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16. (Currently Amended) A catalyst for treating an exhaust gas stream comprising:
a NO_x occluding catalyst structure comprising an alkaline earth exchanged zeolite
and an alkaline earth alumina having an outer layer

wherein the outer layer comprises ~~ing~~ at least about 50 wt% ~~of~~ an alkaline earth
oxide component, not more than about 42 wt% ~~of~~ a rare earth oxide component, a surface area
stabilizer, and a ceramic oxide binder, based upon the total weight of the outer layer.

17 - 18. (Cancelled)

19. (Original) The catalyst of Claim 16 for treating an exhaust gas stream
comprising:

a NO_x occluding catalyst structure having an outer layer comprising about 70 wt%
alkaline earth oxide component, about 25 wt % rare earth oxide component, about 3 wt% surface
area stabilizer, and about 2 wt% ceramic oxide binder.

20. (Original) A catalyst for treating an exhaust gas stream comprising:

a NO_x occluding catalyst structure having an outer layer comprising at least about
70 wt% calcium oxide component, not more than about 25 wt % neodymium oxide component,
not more than about 3 wt% zirconium surface area stabilizer, and at least about 2 wt%
ammonium aluminum oxide sol binder.

21 - 23. (Cancelled)

24. (Currently Amended) A catalyst for treating an exhaust gas stream comprising:

a NO_x occluding catalyst structure comprising an alkaline earth exchanged zeolite
and an alkaline earth alumina and having an outer layer comprising at least about 50 wt% an
alkaline earth oxide component, a rare earth oxide component, a surface area stabilizer, and a
ceramic oxide binder.

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25. (Previously Presented) A method for making a catalyst, comprising:
combining a calcium compound and a neodymium compound with a support to form a calcium-neodymium catalyst;
combining the calcium-neodymium catalyst with a binder;
washcoating a substrate with the calcium-neodymium catalyst; and
calcining the washcoated substrate.
26. (Previously Presented) The method of Claim 25, wherein the calcium compound is selected from the group consisting of calcium succinate, calcium tartrate, calcium citrate, calcium acetate, calcium carbonate, calcium hydroxide, calcium oxylate, calcium oleate, calcium palmitate and calcium oxide.
27. (Previously Presented) The method of Claim 26, wherein the neodymium compound is selected from the group consisting of neodymium acetate, neodymium citrate, neodymium oxylate, neodymium salicylate, neodymium carbonate, neodymium hydroxide and neodymium oxide.
28. (Previously Presented) The method of Claim 27, wherein the substrate is selected from the group consisting of an alkaline earth exchanged zeolite, an alkaline earth alumina, and mixtures thereof.
29. (Previously Presented) The method of Claim 28, wherein the binder is selected from the group consisting of acidic aluminum oxide sol, alkaline aluminum oxide sol, and ammonium aluminum oxide sol, and mixtures thereof.
30. (Cancelled)
31. (Previously Presented) The catalyst of Claim 16, wherein said stabilizer is selected from the group consisting of oxides of silicon, titanium, zirconium, and mixtures thereof.

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32. (New) A catalyst for treating an exhaust gas stream, comprising:
a catalyst structure comprising an alkaline earth exchanged zeolite and having an outer layer,
wherein the outer layer comprises a rare earth oxide component and at least about 50 weight percent alkaline earth component, based upon the total weight of the outer layer.